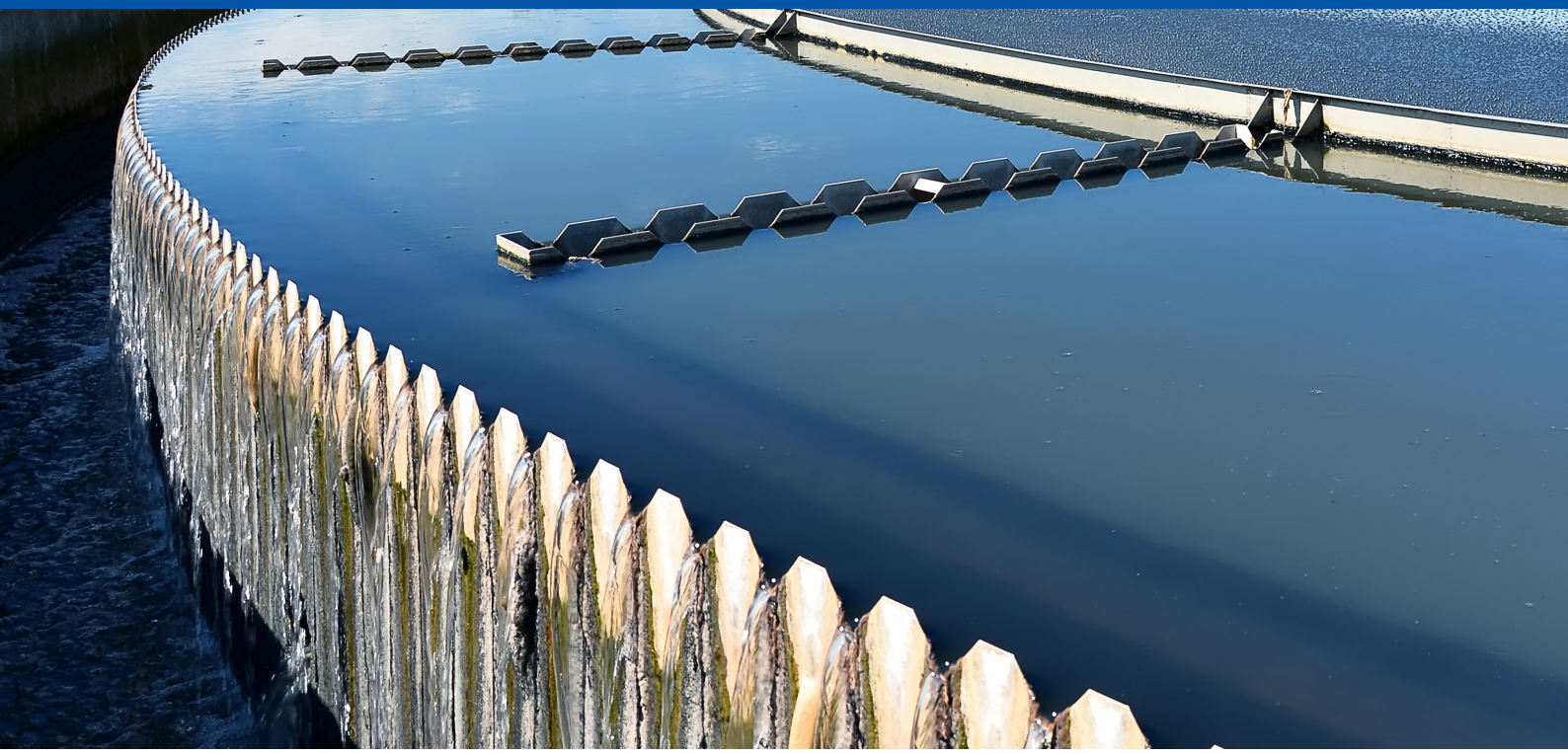
What if we simply didn't treat wastewater?



The importance of industrial wastewater treatment

United Rentals®

Introduction

‘If our wastewater is going to be treated at a wastewater treatment plant (WWTP) anyway, why can’t my people simply pour it down the drain?’ As United Rentals’ Senior Product Manager for its European operations, it’s something I’m often asked. And it’s a very reasonable question.

The answer is that, whether municipal or industrial, all WWTPs are only designed to manage certain pollution loads, which are a combination of composition, flow and concentration. Exceed those loads and the WWTP can’t cope. In practice, this means that if you operate in certain industries and/or generate wastewater, you must either fully treat or pre-treat that wastewater yourself. Just one reason why carrying out your own treatment can make sense.



Bart Ros
Senior Product Manager Europe





The business case for treatment of wastewater

For a business, there are a number of key drivers for treating or pre-treating your wastewater:

The **legal driver** applies when you produce wastewater that's purged directly or indirectly to surface water. If indirectly, the wastewater will be processed within WWTPs, usually using a traditional activated sludge system. With both the direct and indirect routes, biological processes and/or bacteria biodegrade the pollution. When the flow, type and/or concentration would have a negative impact on the aquatic ecosystem because they exceed the maximum removal capabilities, you've got to (pre-)treat it yourself. Reasonable enough, right?

There's a **financial driver** if you're emitting pollutants of a type or volume that require extra treatment for which the public water authorities would charge you. If the amount of these pollutants you produce exceeds a certain threshold, and you can afford the investment, then usually it will be cheaper to carry out the treatment yourself.

The **ethical driver**. For most companies there are other drivers, too. Such as a commitment to social responsibility or the environment. One 'green' reason to (pre-)treat your wastewater is the need for us as a society to reuse water more. Producing clean drinking water is getting increasingly difficult due to growing quantities of contaminants in it, such as hormones and medicines. Treatment onsite makes it possible to reuse that water.

The **reputational driver**. Today, a good reputation with consumers and other stakeholders is crucial to any business. And when it comes to environmental issues, your good name can be wiped out at a stroke. Imagine, for example, that your company ignores the legislation and fails to treat wastewater it should treat, or neglects to follow its on-site treatment protocols properly. If as a result you produce pollutants that reach a WWTP not designed to handle them, you've got a problem on your hands that can quickly become complex and costly. Worst-case scenario, your pollutants end up in our rivers and tap water. In which case, good luck to any company trying to deal with the legal and PR fallout!



The real reason we must treat pollutants
Though at times it may not feel that way, government doesn't normally make up rules for the sake of it. The reason we're legally obliged to treat our wastewater is that otherwise pollutants would have a major negative impact on:

- **People:** ourselves and future generations.
- **Flora & Fauna:** both current and future species.

Mention protecting fauna and most of us think of endangered species or images of poor creatures washed up on shores or riverbanks. But the biggest threat from ignoring pollutants is not to our furry friends but to our microscopic ones: the bacteria who convert our waste into something harmless.

Types of pollutants
When people talk about emissions, they're usually only thinking of vapours or fumes. But actually there's many more, which we can summarise in four categories:



- **Vaporised pollution**
  Including gases harmful to humans, animals or even the ozone layer.



- **Visible liquified pollution**
  Such as settling particles, suspended solids and floating liquids.



- **Dissolved liquified pollution**
  Including acids and toxic heavy metals like copper, zinc and chrome. But also dissolved pollutants such as sugar, nitrogen, phosphorous, medicines and hormones.



- **Solid waste**
  Including chemical, biological, organic and oil-polluted sludge.

All these pollutants will impact water quality. Not only through direct pollution but also by dry or wet deposition and leaching, thus affecting aquatic ecosystems. So, clearly it's in everyone's interest to treat pollutants effectively.

But what would happen if we did nothing...?
If we didn't reduce the levels of pollutants either at source or prior to their emission into water, air and land, it would have a massive negative impact on our aquatic ecosystems:

1. There wouldn't be enough **oxygen** to deal with the increased amount of biodegradable pollution - so-called **oxygen depletion**.
2. The higher levels of **toxic components** would harm bacteria, flora and fauna.
3. The water's increased **turbidity** caused by suspended, emulsified or floating pollution would affect its quality as a habitat for flora, fauna and bacteria. And plants wouldn't get enough light for photosynthesis, so they wouldn't grow to convert nutrients into oxygen, which again would ultimately lead to **oxygen depletion**.



What can we do?

The job of people like me is to help stop any of that happening. But like most issues in our world, we can only address the problem successfully when we collaborate.
The challenges I help customers address vary enormously. From preventing different types of pollutants from entering liquid containment tanks on the one hand, to stopping fumes escaping them on the other. And from getting pollutants to bypass or not negatively impact existing treatment systems to stimulating the treatment of biodegradable pollution.

In future articles, I'll look more closely at the specific challenges companies face and the practical solutions we offer to resolve them - some ingenious, some surprisingly simple.
As long as it does the job, and our microscopic bacterial friends continue to thrive and keep our waterways clean, I'll be a happy man.

Feel free to get in touch to learn more about the smart and cost-effective solutions out there, or to discuss your specific challenges.



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